In The Claims

1. (Currently Amended): An apparatus, comprising:

a receiver receiving a signal having a plurality of pseudo noise codes, where each of the pseudo noise codes of the plurality of pseudo noise codes originates from a GPS transmitter, where a plurality of chips make up each pseudo noise code in the plurality of pseudo noise and the plurality of chips is offset between 511 chips before a pseudo noise code boundary and 512 chips after the pseudo noise code boundary;

a local clock with an error of less than 0.5 ms relative to a GPS time; and

a decoder connected to the receiver and the local clock that is synchronized to the signal, identifies four pseudo range equations for at least four GPS transmitters from the plurality of GPS transmitters, and determines a location of the receiver by simultaneously solving the four pseudo range equations that use a determined error (C_j- $\hat{C}_j$) in the receivers time estimate with a chip C_j that is offset from an expected chip $\hat{C}_j$.

2. (Cancelled).

3. (Currently Amended). The apparatus of claim 1, wherein each of the pseudo range (PR) equations when the pseudo noise code boundary is less than 512 chips and an estimated range is R, a chip from the plurality of chips transmitted at T time C_k is received at the receiver as a chip C_j that is offset from an expected chip $\hat{C}_j$, and L_{chip} is a distance that the signal propagates in one chip time (c/1.023e6 = 293.0522561 m), is;

$$PR = R - \left(C_j - \hat{C}_j\right)L_{chip}.$$

4. (Previously Presented). The apparatus of claim 1, wherein each of the pseudo range (PR) equations when the pseudo noise code boundary is greater than 511 chips and has an estimated range R, a chip from the plurality of chips transmit at T time C_k, received at the receiver as a chip C_j that is offset from an expected chip $\hat{C}_j$, and L_{chip} being a distance that the signal propagates in one chip time (c/1.023e6 = 293.0522561 m), is;

$$PR = R + \left[1023 - \left(C_j - \hat{C}_j\right)\right]L_{chip}.$$

5. (Previously presented). The apparatus of claim 1, wherein a time error in the local clock is identified and corrected upon the determination of the location of the receiver is correct.

6. (Previously presented). The apparatus of claim 1, further comprising:

a temperature sensor attached to a crystal in the local clock to take heat measurements of the crystal and reports heat measurements to the decoder to enable the decoder to adjust the local clock readings in response to heat measurements.

7. (Previously amended). A method, comprising:

receiving at a receiver a signal generated at a plurality of GPS transmitters;

synchronizing the receiver to the signal;

identifying at least four pseudo noise codes in the signal;

calculating time with a local clock having an error of less than 0.5 ms relative to a GPS time;

deriving at least four pseudo range equations from each of the at least four pseudo noise codes; and

locating the receiver by solving the at least four pseudo range equations simultaneously when the pseudo noise code boundary is less than 512 chips and an estimated range is R, a chip from the plurality of chips transmitted at T time C_k is received at the receiver as a chip C_j that is offset from an expected chip $\hat{C}_j$, and L_{chip} is a distance that the signal propagates in one chip time (c/1.023e6 = 293.0522561 m), is;

$$PR = R - \left(C_j - \hat{C}_j\right)L_{chip} .$$

8. (Cancelled).

9. (Previously presented). The method of claim 7, further comprising:

solving each of the pseudo range (PR) equations when the pseudo noise code boundary is greater than 511 chips and has an estimated range R, a chip from the plurality of chips transmit at T time C_k, received at the receiver as a chip C_j that is offset from an expected chip $\hat{C}_j$, and L_{chip} being a distance that the signal propagates in one chip time (c/1.023e6 = 293.0522561 m), is;

$$PR = R + \left[1023 - \left(C_j - \hat{C}_j\right)\right]L_{chip} .$$

10. (Currently Amended). An apparatus, comprising:

means for receiving at a receiver a signal generated at a plurality of GPS transmitters;

means for identifying at least four pseudo noise codes in the signal upon synchronization of the signal at the receiver;

means for calculating time with a local clock having an error of less than 0.5 ms relative to a GPS time;

means for deriving at least four pseudo range equations from each of the at least four pseudo noise codes; and

means for solving each of the at least four pseudo range equations to locate the receiver when the pseudo noise code boundary is less than 512 chips and an estimated range is R, a chip from the plurality of chips transmitted at T time C_k is received at the receiver as a chip C_j that is offset from an expected chip $\hat{C}_j$, and L_{chip} is a distance that the signal propagates in one chip time (c/1.023e6 = 293.0522561 m), is;

$$PR = R - \left(C_j - \hat{C}_j\right)L_{chip} .$$

11. (Cancelled).

12. (Previously presented). The apparatus of claim 10, further comprising:

means for solving each of the pseudo range (PR) equations when the pseudo noise code boundary is greater than 511 chips and has an estimated range R, a chip from the plurality of chips transmit at T time C_k, received at the receiver as a chip C_j that is offset from an expected chip $\hat{C}_j$, and L_{chip} being a distance that the signal propagates in one chip time (c/1.023e6 = 293.0522561 m), is;

$$PR = R + \left[1023 - \left(C_j - \hat{C}_j\right)\right]L_{chip} .$$

13. (Previously presented). A machine-readable signal bearing medium containing instructions that cause a controller to perform a method for fast satellite acquisition, the method comprising:

receiving at a receiver a signal generated at a plurality of GPS transmitters;

identifying at least four pseudo noise codes in the signal;

calculating time with a local clock having an error of less than 0.5 ms relative to a GPS time, where the local clock is synchronized to the signal;

deriving at least four pseudo range equations from each of the at least four pseudo noise codes; and

locating the receiver by solving the at least four pseudo range equations simultaneously when the pseudo noise code boundary is less than 512 chips and an estimated range is R, a chip from the plurality of chips transmitted at T time C_k is received at the receiver as a chip C_j that is offset from an expected chip $\hat{C}_j$, and L_{chip} is a distance that the signal propagates in one chip time (c/1.023e6 = 293.0522561 m), is;

$$PR = R - \left(C_j - \hat{C}_j\right)L_{chip} .$$

14. (Cancelled).

15. (Previously presented). The method of claim 13, further comprising:

solving each of the pseudo range (PR) equations when the pseudo noise code boundary is greater than 511 chips and has an estimated range R, a chip from the plurality of chips transmit at T time C_k, received at the receiver as a chip C_j that is offset from an expected chip $\hat{C}_j$, and L_{chip} being a distance that the signal propagates in one chip time (c/1.023e6 = 293.0522561 m), is;

$$PR = R + \left[1023 - \left(C_j - \hat{C}_j\right)\right]L_{chip} .$$